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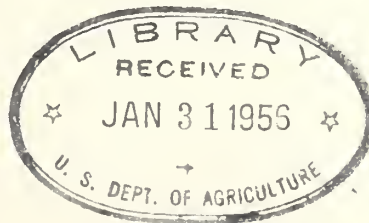
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f PUPIL RESPONSE TO EXPERIMENTAL REDUCTIONS IN PRICE OF MILK
TO CHILDREN IN SELECTED ELEMENTARY AND SECONDARY SCHOOLS
IN MADISON AND MILWAUKEE, WISCONSIN x

This report summarizes the findings and conclusions of one in a series of studies of the Special School Milk Program undertaken by State educational agencies in cooperation with the United States Department of Agriculture, Agricultural Marketing Service. Funds to conduct these studies were made available by the Commodity Credit Corporation to permit the appraisal and development of new and more effective methods of increasing the availability and consumption of milk in schools.

This study was undertaken by the Wisconsin State Department of Public Instruction in the fiscal year 1955. Supervising the study was Gordon W. Gunderson, Supervisor, School Lunch Program, Wisconsin State Department of Public Instruction. Hugh L. Cook and Harlow W. Halvorson of the Department of Agricultural Economics, University of Wisconsin, were immediately in charge of the conduct of the study.

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PUPIL RESPONSE TO EXPERIMENTAL REDUCTIONS IN THE
PRICE OF MILK TO CHILDREN IN SELECTED ELEMENTARY
AND SECONDARY SCHOOLS IN MADISON AND MILWAUKEE,
WISCONSIN

Purpose of Study

The purpose of the study was to determine the effect of reduced milk prices in selected elementary and secondary schools in Madison and Milwaukee, Wisconsin, on (1) pupil participation in the Special School Milk Program; and (2) the level of milk consumption in schools. The project also included a survey of the parents of elementary school children to determine the factors influencing their decision concerning their child's participation or non-participation, and attempted to measure possible changes in home consumption of milk among participating children.

Procedure for Conduct of Study

A total of 36 schools in the Cities of Madison and Milwaukee were selected as experimental schools. In these schools, price reductions of 1, 2 or 3 cents per half pint of milk were instituted experimentally and the resulting effects upon participation and milk consumption were studied. Milk prices in the other elementary and secondary schools (81 in number) offering milk to children in the two cities remained unchanged. Milk consumption in these schools was also measured as a control for seasonal or other changes in milk consumption which might take place during the period of the study.

The technique used in this study involved the use of on-the-spot enumerators who, in addition to checking sales data, questioned pupils; the obtaining of information on sales data from cafeteria supervisors; and the use of home questionnaires in one city to appraise the effect

of increased school consumption on home consumption.

From the data collected measurement was made of changes in consumption from the pre-experimental period (the month of February) and the experimental period. An index of consumption was developed for both the experimental and control schools using February as the base month.

Prior to the undertaking of the experimental projects, the price of milk had been reduced in all schools in both cities. Prices in Madison had been reduced in October 1954, from 5 to 4 cents per half pint in elementary schools and from 6 to 5 cents in secondary schools. Prices in Milwaukee schools had been reduced from 5 to 4 cents in January 1955. Before the beginning of the study, therefore, increased milk consumption in the experimental schools had already been encouraged through a reduction in price. City-wide, milk consumption in both school systems was already over one-third greater than 1953-54 base consumption when the experimental price reductions were instituted.

Effort was made to disturb the usual routine, in the survey schools, as little as possible by the experiment and to minimize publicity of the experiment. In the elementary schools parents were notified of the price reductions but no direct notification was made to parents of children in the high schools studied.

Conclusions

The major finding of the study was that the experimental schools combined showed a record of increase in consumption during the experimental period even though the experiment was conducted during a period of seasonal declining milk consumption in schools. In the elementary experimental schools, the milk consumption index in the two cities studied was approxi-

mately 50 percent higher than in the control schools, while the consumption increase in the experimental high schools was around 10 to 15 percent over the control schools.

The study also revealed:

1. The greater the price reduction, the greater was the increase in consumption.
2. An inverse relationship was found to exist between the previous rate of participation and increases in consumption, i.e., the higher the previous rate of participation, the smaller was the percentage increase in milk consumption that was obtained.
3. In Madison schools, additional times of service was an important factor in stimulating milk consumption, especially in those schools where the percentage reduction in price was small.
4. Reduced prices resulted in increased numbers of children drinking milk at school.
5. A mail survey of Madison housewives indicated that most of the increased milk consumption at school was new consumption, not the replacement of home consumption.
6. Sales of chocolate and white milk were about equally divided in Madison high schools when both were priced the same.
7. Data collected in two Madison high schools showed that nearly one-fifth of the students buying milk in the cafeterias during the survey period bought two half pints daily.
8. There was evidence that participation in the milk program declines markedly as the age of the child increases.

Effect upon Milk Consumption

The following table compares changes in milk consumption in the experimental and control schools, using the February 1955 milk consumption level as the basis for comparison. (In the case of Milwaukee schools, the experimental programs did not begin until late in April, whereas it began around the middle of March in Madison schools.)

Indexes of Milk Consumption
in Milwaukee and Madison Elementary and High Schools
March through May 1955 1/
(February 1955 = 100)

Schools	Classification	Number of Schools	March	April	May
Milwaukee	Elementary, Experimental	18	103	109	145
Milwaukee	Elementary, Control	76	105	97	94
Madison	Elementary, Experimental	8	124	157	143
Madison	Elementary, Control	5	96	94	89
Milwaukee	High Schools, Experimental	8	94	102	106
Milwaukee	High Schools, Control	4	98	94	93
Madison	High Schools, Experimental	2	129	128	130
Madison	High Schools, Control	--	--	--	--

1/ Adjusted for number of days milk was served and changes in enrollment.

Milk consumption in the control schools in both cities declined seasonally in April and May. In these schools, May consumption ranged between 89 and 94 percent of average daily consumption in the base month of February. Milk consumption in May in the experimental elementary schools was approximately 50 percent higher than in the control elementary schools where no price reductions were made during the project period. In the experimental high schools, a significantly lesser rate of increase was reported in May--about 10 to 15 percent higher than in the control high schools.

Effect of Various Price Reductions on Increased Consumption

Immediately prior to the experimental period, milk was sold in both Madison and Milwaukee elementary schools at 4 cents per half pint. The price of milk to the student was reduced by 1 cent, 2 cents and 3 cents, in three groups of schools for the purpose of measuring increases in consumption which might be attributed to the various price reductions.

The following table shows consumption response in elementary schools in Milwaukee and Madison for the first and second periods of sales at the reduced prices, as a percent of milk sales in the period immediately before the price change. (In these schools, milk was sold on the basis of milk pay periods usually of about one month.)

Price Reduction :		Percent :	Percent Increase in Consumption			
Cents Per Half Pint :		Price :	Madison :		Milwaukee	
From :	To :	Reduction :	1st Period :	2nd Period:	1st Period:	2nd Period
4	3	25	41.8	7.2	10.5	9.8
4	2	50	71.2	59.0	40.2	69.5
4	1	75	158.8	150.2	68.0	82.6

Part of the increased milk consumption in Madison elementary schools came from increased availability (new times of service). Milk service in Madison schools was generally increased to twice a day compared to once a day before the experiment. This was of prime importance in achieving increased consumption in those schools where the percentage reduction in price was small. New times of milk service were not introduced in the Milwaukee schools. This response of the pupils to new times of service is probably a prime factor in the differences in the percentage increase in the two school systems.

The increase in milk consumption during the first sales period shows that greater increases in consumption are obtained with larger price reductions. Moreover, the data indicate that a fairly large reduction in price will maintain consumption at higher levels while smaller reductions have less sustained effect. The falling off of milk consumption in some of the schools during the second period, as noted in the preceding table, was explained by several factors which were not measured as part of the study:

1. Warm weather toward the end of the school year and lack of refrigeration facilities.
2. Loss of novelty factor (an enthusiastic tendency on the part of students and parents to participate when the announcement of the price reduction was first made but with the novelty reaction declining in importance by the second period).

Effect of Price Reduction Related to Prior Level of Consumption

Higher rates of previous participation in the Special School Milk Program were associated with lower percentage increases in consumption under the experimental conditions. The following data, showing percentage increases in Madison schools during the experiment, illustrate this:

Percentage Changes in Consumption in Sample Madison
and Milwaukee Elementary Schools Classified by Previous Rates
of Participation: March to May 1955

Participation	Percent Increase in Consumption			
	Madison		Milwaukee	
	1st Period	2nd Period	1st Period	2nd Period
Low	94.6	66.1	54.5	65.0
Average	101.2	71.7	22.0	47.7
High	16.3	-2.8	39.9	58.6

Percent of Children Participating

Price reductions appeared to have encouraged more children to drink milk in school. In the Milwaukee schools, one-third of the children were drinking milk in the pre-experimental period. This increased to 69 percent in the first period of the experiment and then declined to 64 percent in the second. Madison started the experiment with a higher level of participation. Nearly 63 percent of the children were already taking milk. This increased to 73 percent in the first period of the experiment, then declined to 65 percent. This seasonal decline was, however, much less than in the control schools where prices had remained constant.

Effect of the Price Reduction on Home Consumption

A mail survey was conducted among Madison families to determine the possible effect of milk consumption at school on home consumption. Of the 534 returns from families with children drinking milk at school, 78 percent reported that home milk consumption remained the same, 10 percent said that it increased and 12 percent reported decreased consumption.

Chocolate Milk

Sales of chocolate and white milk were about equally divided in Madison high schools where both were priced the same. Prior to the experiment, chocolate milk was priced higher. When prices were reduced so that both sold at the same price, sales of chocolate milk increased more than did the sales of plain milk. It was concluded that there is reason to expect that combined sales of both types of milk were greater than if chocolate milk had not been offered for sale.

Chocolate milk was somewhat more preferred by boys than girls. Between 55 and 60 percent of the boys bought chocolate milk while about 40 to

50 percent of the girls bought this item.

Percentage Participation by School Grade

In the Madison elementary schools studied, participation declined as the age of the child increased. Over 90 percent of the kindergarten children drank milk at school, about 87 percent in the first and second grades, 78 percent in the third grade, 72 percent in the fourth, 64 percent in the fifth, and 59 percent in the sixth. Complete data were not obtained for the seventh and eighth grades.

